

**Translation**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>0521DBR001WO</b>	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. <b>PCT/FR2004/001033</b>	International filing date (day/month/year) <b>28.04.2004</b>	Priority date (day/month/year) <b>29.04.2003</b>
International Patent Classification (IPC) or national classification and IPC		
Applicant <b>PHAM, Hong, Cong, Tuyền</b>		

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>																									
<p>4. This report contains indications relating to the following items:</p> <table border="0"> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>		<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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Date of submission of the demand	Date of completion of this report																								
Name and mailing address of the IPEA/EP	Authorized officer																								
Facsimile No.	Telephone No.																								

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FR2004/001033

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_ which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-11 \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1-6 \_\_\_\_\_ received by this Authority on 19.02.2005 with letter
- nos.\* \_\_\_\_\_ received by this Authority on of 17.02.2005
- ☒ the drawings:
- sheets 1/3-3/3 \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (specify): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (specify): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (specify): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (specify): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/FR2004/001033

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement															
1. Statement	<table><tr><td rowspan="2">Novelty (N)</td><td>Claims <u>4, 6</u></td><td>YES</td></tr><tr><td>Claims <u>1-3, 5</u></td><td>NO</td></tr><tr><td rowspan="2">Inventive step (IS)</td><td>Claims _____</td><td>YES</td></tr><tr><td>Claims <u>4, 6</u></td><td>NO</td></tr><tr><td rowspan="2">Industrial applicability (IA)</td><td>Claims <u>1-6</u></td><td>YES</td></tr><tr><td>Claims _____</td><td>NO</td></tr></table>	Novelty (N)	Claims <u>4, 6</u>	YES	Claims <u>1-3, 5</u>	NO	Inventive step (IS)	Claims _____	YES	Claims <u>4, 6</u>	NO	Industrial applicability (IA)	Claims <u>1-6</u>	YES	Claims _____	NO
Novelty (N)	Claims <u>4, 6</u>		YES													
	Claims <u>1-3, 5</u>	NO														
Inventive step (IS)	Claims _____	YES														
	Claims <u>4, 6</u>	NO														
Industrial applicability (IA)	Claims <u>1-6</u>	YES														
	Claims _____	NO														
2. Citations and explanations (Rule 70.7)	<p>1. Reference is made to the following documents:</p> <p>D1: US 6 038 330 (R. J. Meucci) 2000-03-14;</p> <p>D2: G. Theile, H. Wittek, M. Reisinger: "Wellenfeldsythese", Fernseh- und Kinotechnik, 57. Jahrgang - Nr. 4/2003, XP2260015.</p> <p>2. <b>Lack of novelty</b></p> <p>The correction of the error, as submitted by the applicant in the letter dated 17 February 2005, has been accepted. However, the present application still does not fulfil the requirements set forth in PCT Article 33(1) because the subject matter of claims 1-3 and 5 does not comply with the requirement of novelty defined in PCT Article 33(2).</p> <p>2.1 <b>Independent claim 1</b></p> <p>Document D1 describes (the references between parentheses apply to said document):</p>															

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

an acoustic headset (figures 1 and 2; column 5, lines 53-64) for the spatial reproduction of a sound, which headset is provided with two headphones (16 and 18 in figures 1 and 2) each including a carrier (30 in figures 2-4; column 6, lines 12-27) at least partially defining a dome-shaped surface that completely encloses the listener's ear (figure 4) and at least five loudspeakers (column 8, lines 61-63; column 6, lines 39-49) arranged on said dome-shaped surface, wherein the spacing between two adjacent loudspeakers is less than half of the shortest wavelength corresponding to a given maximum frequency (figures 4 and 6; column 8, line 57 to column 9, line 27; it should be noted that the 13 loudspeakers in document D1 cannot be arranged in such a way that the spacing between two adjacent loudspeakers is more than approximately 2.8 cm; however, since half of a wavelength corresponding to, for example, 5 kHz is 3.43 cm, the spacing is obviously more than 2.8 cm) in such a way that a sound field perceived as continuous by the human ear is reproduced for audio frequencies lower than said given maximum frequency, which is a frequency audible to the average human ear.

It should be mentioned that the applicant's arguments with regard to novelty, as set out in the letter dated 17 February 2005, are based on

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	<p>the assumption that said given maximum frequency is 16 kHz. However, claim 1 defines said frequency only as being a frequency audible to the average human ear.</p>
2.2	<p><b>Claim 2</b> discloses that the headset includes at least 6 loudspeakers per headphone. This is known from D2 (figure 2; column 8, lines 61-67).</p>
2.3	<p><b>Claim 3</b> discloses that the maximum frequency is 5 kHz and that the spacing between two adjacent loudspeakers is no more than 3 cm. This is known from D1 (figures 4 and 6; column 8, line 57 to column 9, line 27). The 13 loudspeakers cannot be arranged in such a way that the spacing between two adjacent loudspeakers is more than approximately 2.8 cm.</p>
2.4	<p><b>Claim 5</b> discloses that the headphones are closed and that said carrier includes a shell, which defines a dome-shaped surface capable of receiving said loudspeakers. This is known from D1 (figures 1, 2 and 4; column 6, lines 22-27).</p>
3.	<p><b>Lack of inventive step</b></p> <p>Dependent claims 4 and 6 do not contain any features which, in combination with the features of any one of the claims to which they refer, might define subject matter that fulfils the PCT requirement of inventive step (PCT Article 33(3)).</p>

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
3.1	<p><b>Claim 4</b> discloses that the headphones are open and that said carrier consists of a frame capable of receiving said loudspeakers. Producing headsets with either open or closed headphones is, however, well known. It follows that, depending on each particular case, a person skilled in the art would select one of these two obvious options without having to exercise any inventive skill.</p>
3.2	<p><b>Claim 6</b> defines a device for recording a sound for subsequent spatial reproduction, which device consists of a headset as per any one of the preceding claims, wherein the loudspeakers are replaced with omni-directional or cardioid microphones, and the dome-shaped recording surface corresponding to said recording device is unitary with said dome-shaped surface of said headset. It is, however, already known from document D2 that a multidimensional sound field can be reconstructed using, firstly, a plurality of microphones positioned according to a specific arrangement during recording, then a plurality of loudspeakers positioned according to the same specific arrangement for reproducing the recording signals (cf. D2, paragraph 3.2). In order to achieve the aim of reproducing 3-D sound fields, disclosed D1 (cf. D1, column 3, lines 41-45), a person skilled in the art would replace the loudspeakers with microphones in order to make a recording and would thereby arrive at the subject matter of claim 6 without having to exercise any inventive skill.</p>